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ABSTRACT

This report by the president of Rutgers University (New Jersey) reviews past progress of New Jersey's commitment to economic and social progress through collaborative efforts with its State University, examines the impact of past and proposed budget reductions for fiscal year 1992, and discusses Rutgers' and New Jersey's future prospects into the 90's. Included among Rutgers' past accomplishments are: (1) its enrollment of over 47,000 students and its high percentage of minority enrollment; (2) its close ties with New Jersey industry; and (3) its employment of a high percentage of women and minority faculty. The report stresses, however, that future budget cuts may cause reductions in many academic areas including faculty. The report also notes that a fourth year of substantial budget cuts will have serious consequences on Rutgers' ability to maintain a high enrollment level as well as maintain the quality of its academic programs. It is argued that if New Jersey wishes to meet the challenges of the future with confidence, Rutgers must be a part of an active partnership with the state, and that adequate investment in Rutgers should be maintained. Appendices include a list of Rutgers' centers and institutes for research and science and academic support programs. (GLR)

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The Joint Future of New Jersey
and
Rutgers, The State University of New Jersey

Francis L. Lawrence
President
Rutgers, The State University of New Jersey

January 1991

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Past accomplishments.

New Jersey's commitment to economic and social progress must include a commitment to its State University because its future is inextricably linked with that of Rutgers. The gains the state made in the last decade were important in providing a solid foundation of economic growth and diversification of economic base with which to meet the next century. Rutgers, The State University of New Jersey was a part of that building process, and continues to be one of New Jersey's hardest working partners. The yield from that partnership has been great:

- Educating the future work force of New Jersey. Rutgers has awarded over 250,000 degrees since its establishment 225 years ago, with nearly three-fourths of those degrees awarded in the last 20 years. The University has 26 schools and colleges, offering nearly 100 major fields of study.

- Enrolling over 47,000 students, representing New Jersey's best students in the state's diverse ethnic and racial groups. Rutgers stands in the top five public universities of the 58-member Association of American Universities (an organization of the major research universities in North America) in minority enrollments.

- Employing among the highest percentages of women and minority faculty of any of the AAU institutions. The fact that the nation's work force will be predominantly comprised of women and minorities in ten years makes this commitment all the more important.

- Providing an institution of higher education nationally known for its commitment to both undergraduate education and research (most recently cited by the Middle States Association of Colleges and Schools, the University's accrediting association).

- Developing close ties with New Jersey industry in order that industry has the necessary opportunities for collaboration and consultation with a comprehensive state university. Industries, in order to thrive, need the research, training, and consultation services of a comprehensive university.

- Exceeding the goal of a private fund-raising campaign - $166 million dollars were raised, $91 million more than the original goal of $75 million. This campaign was launched in order to further expand Rutgers' support base. While impressive, it should be noted that 98 percent of these funds may be used only for specific purposes that the donors designate and cannot be used to replace state budgeted support. These funds were raised in part because of the confidence that the state would honor its obligations to support the quality of the University.

- Multiplying externally sponsored research over five-fold from $16.6 million in 1977 to nearly $93 million in 1990. These funds went directly into the New Jersey economy and could not have been raised without the presence of eminent scholars and up-to-date facilities developed during the last decade.
- Earning the overwhelming endorsement of New Jersey voters for two higher education bond issues that contributed significantly to the $600 million building expansion program, which moved Rutgers further toward the resources found at peer institutions.
- Strengthening the Rutgers service mission through development of projects in critical areas of New Jersey concern: economy, environment, education, health, justice, housing, human services, transportation, and cultural activities.

Impact of the proposed budget reductions.

The proposed reductions to the Rutgers budget for fiscal year 1992 add to already deep reductions of appropriations and withholding of salary increments by the state in the past three years totalling over 44 percent (or over $101 million) of the proposed FY 1992 state appropriations. While the University is conducting extensive analyses of how the budget decreases might be absorbed, the unfortunate fact of the matter is that the academic programs can no longer be protected from budget reductions. The budget cuts may necessitate the following consequences:

- undergraduate enrollments reduced;
- library hours reduced;
- planning for new programs eliminated;
- selected academic programs suspended;
- computer and library system development projects suspended;
- over 300 faculty and staff positions eliminated;
- course offerings significantly reduced (current estimate: over 1,500 courses/sections);
- honors programs curtailed;
- academic and student support services cut;
- class sizes increased;
- purchases of instructional equipment and research instrumentation dramatically reduced;
- bus service reduced in New Brunswick;

- maintenance of instructional equipment and research instrumentation deferred, placing the University's significant investment in jeopardy;
- maintenance deferred on existing buildings and grounds;
- general upkeep of the physical plant reduced; and
- public safety, finance and accounting, environmental services, insurance coverage, athletics, admissions, financial aid, registrar, personnel all reduced.

A fourth year of substantial budget cuts will have serious consequences. Virtually every aspect of Rutgers' functioning will be affected. Two major points about the proposed budget cuts must be made clear to the citizens of New Jersey: (1) The quantity of Rutgers' academic offerings will be reduced as well as the number of students that can be served, and (2) the quality of the academic programs will be adversely affected.

The future decade.

This is a critical time in Rutgers' history. Great progress has already been marked. The University has been mobilized for future development and distinction. Rutgers has been steadily building its strengths for a generation, developing a solid evolutionary growth and forward momentum. Eroding support for Rutgers at this juncture will most assuredly have much larger costs than those required today. Rutgers is a necessary part of New Jersey's progress. Its ability to continue its contribution is in question. The University needs increased support if it is to maintain its close partnership with New Jersey. Its potential for service to New Jersey is limited only by the support it will receive. Further, with that state support, the University is positioned to attract from other sources an increasing portion of its needs for additional resources.

Rutgers' three-part mission of teaching, research, and service affirms the state's vision for maintaining and enhancing its competitive edge. The University has a key role to play in maintaining and improving that edge. Indeed, as The State University, Rutgers involves leaders of state and local government, industry, students and alumni, and the larger New Jersey community in its planning process to ensure its responsiveness to New Jersey's major goals. The partnership between state and university is both natural and necessary. One has only to consider other states with great universities to see the importance of this connection.

New Jersey boasts the second highest per capita income in the United States. That statistic is not derived from an economy based on unskilled labor. Rather, New Jersey's industries are grounded in high worker skills and high levels of technological applications. Both require a close connection

with a comprehensive university.

The advancement of knowledge and science is a prerequisite to societal growth and prosperity. An active intellectual climate breeds imagination that can help to solve social problems, scientific mysteries, and technological challenges. A vibrant intellectual community also supports the advancement of knowledge through the study of literature and language as well as by support of the expression of culture in the arts.

Rutgers' strides in the past decades are ones in which New Jerseyans take great pride and in which they have ownership. Reducing resources for Rutgers at this time jeopardizes the state's investment in its own future success. Increasing support for Rutgers will increase the available resources that the state will be able to draw upon for help in its response to the many troubling issues which face it today and in the future. This year holds an opportunity to affirm and strengthen the partnership between New Jersey and Rutgers, The State University of New Jersey. As the past decade has clearly shown, the benefits of a continued investment will far outweigh the costs being considered in the short term.

Rutgers is your State University. We at Rutgers cannot meet the challenges of the decade and century ahead without your active partnership. The returns on the New Jersey investment in Rutgers have been great. In fact, investment in Rutgers has proven an excellent fund-leveraging opportunity for the state. And while the yields on investments have been excellent thus far, much more can be done. We want you to join us in building on our proven record of accomplishment and service to New Jersey.

Francis L. Lawrence
President
Rutgers, The State University of New Jersey
January, 1991

The Partnership Between the State of New Jersey and Rutgers

The proposed reductions in the FY 1992 allocations to Rutgers, The State University of New Jersey pose a serious jeopardy to the investment the state has made in its University. The close partnership forged between the state and Rutgers has resulted in important and far-reaching accomplishments in the education of New Jersey's citizens, the advancement of knowledge, and service to the state through a vast spectrum of programs and initiatives.

In its mission of educating undergraduate, graduate, and professional students, Rutgers keeps many of New Jersey's most promising students in the state. Rutgers also generates many of the technologies and ideas which are reflected in the emerging New Jersey economy, and the students educated here have the benefit of being part of the development of those technologies and ideas. For example, Rutgers is ranked 27th in the number of U.S. patents issued to U.S. universities in 1989. The transfer of technology to useful and valuable applications within society is a vital part of the research process, one that directly benefits the state. Rutgers educates, trains, and nurtures the work force of New Jersey, both today's and most assuredly tomorrow's.

This report documents the breadth of the University's achievements and demonstrates the unambiguous benefits to the state in continuing its past commitment. The problems faced by New Jersey today are shared by many other states. The way in which those problems are dealt with and resolved in the 1990s will largely depend on a continuing partnership with higher education. The state's past support and Rutgers' effective use of that support have put New Jersey's State University in position to assist the state in addressing the complex issues it currently faces.

New Jersey's commitment to excellence must include a commitment to its State University because its future is inextricably linked with that of Rutgers. New Jersey, which has made such significant progress in the last ten years in economic growth and diversification of its economic base, needs a comprehensive research university that is nationally ranked among its peers. Virtually all other states engaged in serious efforts to provide their citizens with the best environment possible in which to live and work have comprehensive research universities working with the states as partners toward their joint ambitions. In 1984, Rutgers proposed, in the report of the Committee on Future Financing, a multi-dimensional partnership with the state of New Jersey to continue its drive for excellence. The report underscored the importance of the integral relationship between the goals of New Jersey and its State University. The proposal was unique in that it was made by a committee drawn from leaders of industry, state and local government, and the larger New Jersey community. This diverse group worked for over a year toward its common purpose: building a state university which would be deeply involved in the future economic, social, political, and cultural development of New Jersey.

New Jersey's objectives are admirable and necessary for the state's continued growth and well being, all the more because many have been realized in the state's development and priorities in recent years. The state's per capita income is one of the highest in the United States. New Jersey also has one of the country's highest percentages of scientists and engineers among its population. The more than 700 industrial and academic research and development laboratories in New Jersey spend more than $14.7 billion a year and include some of the world's most distinguished corporate laboratories. This figure is estimated to comprise 10 percent of gross state products, and represents over 11 percent of the corporate research and development monies spent nationally. Fully 60 percent of the state's gross product is produced by high technology industries. By striving with the help of its State University to become a leader in both the science and technology necessary to keep the economy vital and growing, the state is making a wise investment in its own future. But economic growth and diversity are not the state's only goals. All of the disciplines of a great university will be required to equip the state to meet the difficult challenges that contemporary society faces: urban crime, multiculturalism, inequality, urban schools, health care, homelessness, and ecological jeopardy such as waste management, ocean quality, and air pollution. Efficient governance, a just legal system, ecological responsibility, and critical human services will insure the best environment possible for the citizens of New Jersey. By supporting cultural activities, excellence in scholarship, and honoring the multicultural heritage of its citizenry, the state provides an environment which enhances the contributions of all New Jerseyans. In order to accomplish these important goals, the state needs as its partner The State University, Rutgers. Advances in knowledge are the keys to a state's responsiveness to the challenges each year brings. Rutgers has long served New Jersey's interests in becoming an attractive state in which to live, study, and work, and has the potential for taking that service to even higher levels in the decade ahead.

Rutgers University also provides the state with one of the finest centers for undergraduate education in the United States. The Middle States Association of Colleges and Schools revalidated the Rutgers mission in its 1988 review of Rutgers' accreditation and highlighted Rutgers' tradition of emphasizing undergraduate education since its inception in 1766. Perhaps the most distinctive feature of undergraduate education at Rutgers, prominently recognized by the Middle States Association, is the historic collegiate structure of the University. Every undergraduate enrolls in a relatively small college, each with a well-recognized mission that is carried out within a supportive environment. The Middle States Association applauded the persistence of this focus at Rutgers through the present day and its contribution to the University's national distinction as a major research university with particular excellence in undergraduate education.

Rutgers currently encompasses 26 schools and colleges which offer degrees in almost 100 major fields of study at the baccalaureate, master and doctoral levels. Over 47,000 students, roughly representative of the state's diverse ethnic and racial composition, study at Rutgers' three campuses in New Brunswick, Newark, and Camden (Exhibits 1 and 2). Each year, Rutgers awards degrees to almost 10,000 students (Exhibit 3). Since its establishment in 1766, Rutgers has awarded over 250,000 degrees, nearly 75 percent of them in the past two decades. The University's centerpiece has traditionally been its undergraduate programs: undergraduate education continues to figure prominently in the University's priorities, dominating enrollments and faculty activities. Providing undergraduates with a small collegiate environment within the resources of a research university serves Rutgers' students in a unique and effective manner that strengthens the University's overall mission.

As the state's only comprehensive State University, Rutgers bears a unique responsibility to provide graduate education. Each year, Rutgers confers nearly 3,000 advanced degrees, representing the overwhelming majority of advanced degrees offered by the state's public higher education sector. Fourteen of the University's 26 degree-granting units offer graduate/graduate-professional programs in such areas as agriculture, business, chemistry, criminal justice, economics, education, engineering, law, management, mathematics, pharmacy, psychology, social work, and urban planning. In many of these disciplines and professions, Rutgers is the only public institution in New Jersey offering graduate education. Thus Rutgers has the central role in educating those persons whose expertise will be critical if we are to address successfully the problems facing our state in the decades ahead.

Rutgers' faculty, whose research is renowned in both the basic science and applied areas, often work with local industry or government on collaborative projects of mutual concern. Service to the state is provided as part of Rutgers' mission through hundreds of projects that permit New Jersey to benefit from the University's educational programs, training seminars, extension activities, and consultation. Rutgers' land grant status further underscores its important service mission. Consistent with its land-grant mission, the New Jersey Agricultural Experiment Station (NJAES), through its research and Cooperative Extension Service, contributes significantly to the welfare of the state by promoting the economic development and enhancement of the food, agriculture, tourism and recreation industries; by improving environmental quality and natural resource management; by fosterir.g community planning and development, and by focusing scientific knowledge discoveries through NJAES research on local and statewide issues and needs. The intellectual and cultural milieu that an eminent state university embodies enhances that environment for the entire community, and indeed, the entire state.

A Review of the Last Decade

During the last decade, the state's partnership with Rutgers was begun in earnest. With other state and private institutions, Rutgers received increased funding. Service to the state was expanded on every dimension of University function: educational programs, service activities, and basic scientific and applied research. Both New Jersey and Rutgers made significant progress toward fulfillment of their mutual goals.

External support.

External research and training dollars at Rutgers grew from $16.6 million in 1977 to nearly $93 million in 1990 (Exhibit 4). These resources that go directly into the New Jersey economy would not have been raised without the presence of the eminent scholars hired and up-to-date research facilities developed during the last decade. Overhead support for research grants and contracts grew from less than $6 million in 1980 to over $12 million this year (Exhibit 5). These funds contribute to the support of research at Rutgers.

The Campaign for Rutgers launched in the 1980s more than doubled its original target of $75 million (Exhibit 6). While the University is committed to continuing its private fund raising efforts and sees those as part of its responsibility to expand its resource base, it should be noted that 98 percent of the donations to the Campaign for Rutgers were given because the donors chose to support certain campaign priorities and may be used only for the purposes that the givers specified. These restricted funds cannot be used to replace state-budgeted support. Indeed, most of these gifts assume that particular state-funded programs are in place and will be maintained.

Part of Rutgers' fund campaign involved an intensive effort to develop close ties with New Jersey industries as well as industries from all over the world. The diversification of Rutgers' ties, both by region and type of industry, was critical to the University's responsiveness to the world economy. Many industries have keen interests in the research products of university laboratories; Rutgers cultivated those ties in order to improve its responsiveness to economic interests and to develop its capabilities in technology transfer.

Faculty research and teaching were further enhanced with the establishment and expansion of some forty centers to coordinate and support research in a variety of fields (Appendix 1). These centers also provide a great deal of public service to the people of the state of New Jersey. The Advanced Technology Centers are cooperatively funded by industry and the state and designed to transfer technology from University laboratories to New Jersey industries. Most of their capital costs were covered by state bonds issued through the Commission on Science and Technology and through Rutgers bonds on which the debt service is covered by the indirect expense funding received on federal grants and contracts. The remaining capital costs were

paid with federal appropriations and private gifts. Operating costs for the Advanced Technology Centers are provided by annual appropriations from the Commission on Science and Technology, corporate memberships and grants, and federal research contracts and grants. In addition to research and teaching centers, Rutgers developed and is planning to expand special programs to prepare the work force of tomorrow. Demographic trends indicate that the work force of the next century will be largely comprised of minorities and women. Rutgers has had a long-standing tradition of meeting the needs of those special constituencies. Rutgers' minority enrollment ranks among the top five of the public institutions in the 58-member Association of American Universities (AAU), an organization of the major research universities in North America (Exhibit 7). In addition, the University has among the highest percentages of women and minority faculty of any of the AAU institutions (Exhibit 8). These statistics are important in understanding Rutgers' tradition of educating both women and minority students and its commitment to hiring and promoting women and minority faculty and staff (Exhibit 9). Such long-term commitments guarantee Rutgers' ability to train the work force of the 21st century (more than half of which will be minority), and together with the University's ties with government and industry, make Rutgers particularly well positioned to shape tomorrow's work force with a responsiveness to the world economy.

Rutgers' $600 million building expansion program, a major portion of which was resoundingly endorsed by New Jersey voters' passage of bond issues (1984 and 1988), resulted in new and enhanced facilities to accommodate Rutgers' growth in its research, teaching, and service missions (Exhibit 10). In addition, careful attention balanced the University's overall building and renovation needs with those more directly related to improving the quality of student life on the campuses. For example, the building/renovation program included student housing, student recreation facilities, student centers, cafeterias, and other construction and renovations of buildings devoted to undergraduate student service. The physical character of the New Brunswick campus demonstrates this emphasis on undergraduate programs. The multiple college system was maintained and reinforced by the new building/renovation priorities. Rutgers' building configurations in Newark and Camden also encourage a sense of involvement and community.

It should be noted, however, that the building expansion of the 1980s was undertaken to correct the abject neglect the campus facilities had suffered in earlier years. Currently, the University's physical plant is at a minimal level of competitiveness with other public research universities. Another major building campaign is necessary to maintain that competitive level and, ideally, to move ahead.

In a separate comparison of the Rutgers-New Brunswick libraries with other members of the Association of Research Libraries, the central campus

places 52nd, showing that a great deal is left to be accomplished in building library collections and services. A ten-year plan for the libraries' system development is in place to guide those efforts. It should also be pointed out that library services are provided to other colleges and to industry, professional organizations, and government agencies. As an example, nearly 3,000 interlibrary loans were made last year to New Jersey colleges and almost another 3,000 to New Jersey corporations (Exhibit 11).

Faculty appointments in the 1980s provided Rutgers with highly productive, prominent scholars as well as many outstanding junior faculty with impressive research and teaching records. Superior senior and junior faculty appointments were sound investments in the creative potential and teaching and research activity of the entire institution. The ensuing large increases in externally sponsored research multiplied the University investment in salaries and facilities. The emphasis in faculty hiring was upon the potential contributions of each candidate to the overall University missions of teaching, research, and service.

Undergraduate education.

Undergraduates still enroll in the historic colleges (as well as newer ones) where they receive personal attention and enjoy academic advantages that are not available at other large state universities.

To be sure, Rutgers' historic success in undergraduate education does not automatically insure that it will continue to meet the challenges of the 1990s and beyond. With this in mind, students, faculty, and administrators alike are taking steps to secure the University's well-earned reputation for excellence in undergraduate teaching and learning. At the present moment, in fact, a great deal of attention is being focused upon undergraduate education throughout the University. Expressed in new courses, programs, and centers on all three campuses, the energy and activity are directed toward making undergraduate education at Rutgers even better than it was in past times (Appendix 2).

An enumeration of the University's initiatives in this area would tax the patience of even the most loyal listener. But a sampling of our endeavors can convey the spirit and the substance of today's ferment for undergraduate education at Rutgers. One strand of conviction, expressed in innumerable programs, is that even at a large research university undergraduate learning cannot be relegated to large lecture courses alone. Learning is an active process and learning to learn can be difficult. Rutgers' undergraduate programs recognize these facts. All three campuses have a variety of educational resource centers to which students can turn for one-on-one assistance in their academic work. The Math and Science Learning Center in New Brunswick offers peer tutoring in all of the mathematical and natural

sciences, hands-on demonstrations, computer-assisted learning tools, and video-tapes of professors solving problems. Math and science are difficult subjects to learn, and too little in our culture encourages success in these areas. The Math and Science Learning Center provides the help that students need, within a supportive environment that encourages them to believe that they can learn science. The same goals are served by the nationally recognized Douglass Project for Rutgers Women in Math and Science, an extraordinary program that encourages female undergraduates to persist in math and science.

Most Rutgers undergraduates study language and literature. Here too they receive individualized assistance. The Writing Centers on every campus offer students the opportunity to get help on their papers from peer tutors with ready access to computers. The Language Laboratories, each with dozens of individual workstations, provide an essential auxiliary to every foreign language course at Rutgers. This year the outdated workstations at the Douglass Campus Language Laboratory are being replaced; next year similar plans are in place for another campus facility. Teaching and learning in other disciplines are also benefiting from a growing emphasis on individual instruction and peer tutoring. During the fall of 1990, for example, the Political Science Department inaugurated a new program in which advanced undergraduate majors led discussion sections for introductory students.

Although every undergraduate who is admitted to Rutgers is capable of doing college-level work, some begin their first year without all the skills they need to benefit fully from a university education. As The State University of New Jersey, Rutgers has the responsibility to enable these students to gain the knowledge and talents that are necessary to pursue more advanced studies. To meet this need, Rutgers provides developmental education in math and English for every student whose test scores indicate that such instruction would be useful. During the fall of 1990, the New Brunswick Department of Mathematics introduced a new course entitled Extended Calculus for Exceptional Learners. Based upon some theories of math education that were first pioneered at Berkeley, the EXCEL program is already a proven success. Besides math and English, many other disciplines on all three Rutgers campuses also offer sections of the introductory courses that are specially tailored for skills-deficient students.

Having learned the basics, many upper-level undergraduates move on to do research at Rutgers, research that builds upon what they have already mastered and fits them superbly for life and work beyond college. Each year, for example, one hundred or more undergraduates study in the laboratories at the Center for Ceramic Research, working in company with top professors and graduate students. Other undergraduates hold research internships in a great variety of programs and centers. Many students conduct individual research projects under the tutelage of professors in a

myriad of departmental and collegiate honors programs. All of the undergraduate honors programs in New Brunswick are currently in the midst of expansion to accommodate the increased numbers of Rutgers students who are able and anxious to receive a quality of education that is rarely available in large public universities.

None of these programmatic innovations would mean very much without a faculty that is truly committed to undergraduate education. Fortunately for Rutgers students, that commitment is strong. During 1990-91, faculty members on all three campuses are reviewing and implementing a series of proposals for the improvement of undergraduate education that have been recommended by faculty/student committees. Among the innovations afoot is a comprehensive program of course evaluations. Beginning in the fall of 1991, students in every undergraduate course at Rutgers will complete questionnaires evaluating their courses and professors, and the results of those surveys will be made widely available. Those who teach best are already recognized through a series of prizes and awards, including university-wide teaching awards, as well as more localized programs such as the New Brunswick Faculty of Arts and Sciences' new Awards for Distinguished Contributors to Undergraduate Education.

The University's heritage of small colleges does not alone explain the fine quality of undergraduate education at Rutgers. That quality is also the product of recent developments, especially the appointment of distinguished new faculty members and the recruitment of many of the finest undergraduates from within New Jersey and around the nation.

Graduate and professional education.

Rutgers' attention to undergraduate education is not only a traditional strength but a deeply felt commitment of the present-day faculty. The increased strength of research and graduate education has not been at the expense of undergraduate education. In fact, nothing is further from the truth. A research active faculty invigorates the classroom experience for undergraduates, and makes students feel as though they are part of the leading edge of their respective disciplines. Teachers involved in research inspire students to learn in ways that most non-research-active faculty cannot do. Involving undergraduates in research further reinforces the intellectual curiosity that is the basis of the learning process itself. Finally, research active faculty pass on their research to their students, so that undergraduates graduating from Rutgers leave for their jobs or their graduate/professional training with state-of-the-art knowledge and skills.

Rutgers' graduate programs provide New Jersey with a pool of men and women trained for top leadership in a broad spectrum of fields necessary for the future well-being of the state. Many of the 61 graduate programs offered

by Rutgers are unique in New Jersey and place upon Rutgers an even greater responsibility for providing quality programs which can successfully supply the state's needs. Independent outside experts regularly continue to evaluate many of these programs as being among the very best in the nation. Thus the conferring of nearly 3,000 doctorate and master degrees annually provides New Jersey with men and women who have the requisite knowledge and abilities to confront the myriad economic, political, social, environmental, and cultural issues in our state.

Many of these graduate offerings make direct contributions toward the future of business in New Jersey by conferring advanced degrees in fields such as economics, management, administration, labor studies and human resources. For example, more than 500 Master of Business Administration degrees alone are awarded annually by Rutgers. The more than 700 graduate degrees that Rutgers grants each year in engineering, agriculture, and the sciences will better prepare New Jersey for the rapid changes in technology in the future. The Newark and Camden law schools graduate nearly 500 students each year.

More than a hundred graduate students receive degrees each year in biology, ecology, environmental sciences, and related fields preparing them to contribute solutions to the state's environmental concern. Similarly, several hundred students are enrolled for advanced study in fields such as political science, public administration, public policy, public health, criminal justice, and urban planning and policy development, preparing to serve at the state, county, or municipal levels of government as well as in private agencies devoted to the state's well-being.

Rutgers' School of Social Work has the only graduate programs in the state; more than 250 Ph.D. and Master of Social Work degrees are awarded annually. Additionally, Rutgers grants more than a hundred advanced degrees annually in various fields of psychology, including school psychology, counseling psychology and guidance, and criminal justice. Together, these men and women are prepared to contribute toward the social and psychological well-being of our communities. Rutgers is the single source of pharmacists to serve the needs of New Jersey's hospitals, community pharmacies, health care agencies like nursing homes, and the research-based pharmaceutical industry so heavily concentrated within the state. The College of Nursing in Newark is the largest supplier of nurses for the state of New Jersey, enrolling about 410 students, with a 97 percent pass rate on the licensing exam in 1990. Over 3,500 practicing nurses take continuing education programs annually in the Rutgers College of Nursing.

Doctorate and master's programs in foreign languages enroll over two hundred students who will enter the work force contributing to efforts at enhancing the ethnic diversity within the state, adding to its competitive edge in the international marketplace, and contributing to the state's cultural

richness.

Graduates of Rutgers' Graduate School of Education, who number over 200 annually and who surpass all other teacher preparation programs statewide in National Teacher Examination scores, are to be found in teaching service in virtually every school district in the state. Among graduates of GSE are superintendents of schools in 91 New Jersey school districts in 19 of New Jersey's 21 counties and doctoral graduates on the faculties of public and private college education departments throughout the state.

Service to New Jersey.

Rutgers has also rendered extensive service to the larger New Jersey community. Seven general categories best describe Rutgers' service activities. Within those categories only a few of the hundreds of examples of service projects are highlighted, but brochures giving more comprehensive information on each service category are being prepared and will be available shortly.

1. *Rutgers and the New Jersey Economy*
   - Center for Ceramic Research faculty provided consultation to over 60 New Jersey companies in 1990 alone. The Center provided the spark that led to the formation of three successful New Jersey businesses. Four companies attracted by the presence of the Center are considering a move to the state.
   - The Marine and Coastal Sciences program at Rutgers' Cook College is providing valuable research on the New Jersey coastline. Faculty are investigating the fate of materials from sludge disposal at the 106-mile site, the effects of oil pollution in estuaries, and status of barrier islands along the coast.
   - Efforts of Rutgers' Center for Plastics Recycling Research have led to the successful creation of a new company called Day Products, Inc., a commercial plant in the Gloucester County town of Bridgeport. The plant generates about $16 million a year in revenues for the company, using technology developed by Rutgers' Center for Plastics Recycling Research. It processes 40 million pounds of polyethylene terephthalate plastic per year.
   - Seventy-five percent of the turfgrass species in the world comes from the new varieties developed by Rutgers' Cook College. In New Jersey alone, which has 865,000 acres of turf, the turf industry is a $500 million dollars annual business.
   - The Fisheries and Aquaculture Technology Extension Center has developed strains of oysters highly resistant to the MSX parasite, thus reviving the devastated oyster industry in Delaware Bay.

Rutgers' warning of the surfacing of a new parasite led to an immediate harvest that saved a $3 to $4 million crop.

- The Agricultural Experiment Station's Integrated Pest Management Program reduces the use of pesticides, thus protecting the environment and making crops more profitable. The state receives a 2.6-to-1 return on its investment in this program.
- The Rutgers Regional Report of the Faculty of Planning provides the only up-to-date regional assessment of the housing market and the retail trade markets for the purposes of planning and development.
- The three University Colleges enable more than 6,000 adult New Jersey citizens to pursue higher education. This helps to upgrade the quality of currently employed workers, which in turn, enables New Jersey business and industry to become more productive and competitive.
- The Center for Urban Policy Research is currently conducting a project to forecast the future of the state's economy which includes carrying out policy analyses for the state government.
- The Graduate School of Management is the headquarters of the New Jersey Small Business Development Center, which provides management and technical assistance to established small business owners and promising new starts statewide with the objective of increased employment and increased tax contributions to the state and federal treasuries.

II. *Rutgers and the State's Environment*

- The New Jersey Agricultural Experiment Station has developed composting technologies that can reduce the need to landfill municipal solid waste by 40 percent.
- The Graduate Program in Ecology conducts research projects evaluating the effects of oil spills.
- The Natural Resources Research and Information Center provides the only research herbarium in the state and works with the Department of Environmental Protection to designate critical habitats for preservation within New Jersey.
- The Department of Biological Sciences does ecological work with plant communities to determine how to get productive, attractive forests back on derelict and closed landfills.
- The Environmental Sciences Department provides training programs on radon reduction techniques.

- The Biology Department faculty is involved in the Governor's Science Advisory Committee's expert panel on the assessment of acid rain in New Jersey.

- College of Pharmacy faculty are an integral part of the new Environmental and Occupational Health Sciences Institute, with particular responsibility for environmental toxicology and toxic waste management research.

- The Chemical and Biochemical Engineering departments have developed technology for removal of toxic chemicals from the earth.

III. *Rutgers and the State's Schools*

- The Committee on Education for Civic Leadership oversees a developing University-wide program that will place Rutgers undergraduates in various settings for a period of supervised community service. The program, now in its pilot phase, includes schools as sites for student internships.

Rutgers, Camden

- The Dean's Summer Scholar Program is for academically talented 11th graders who can take two college-level courses on campus and participate in a series of seminars during summer session.

- The Computer Institute for Mathematics Students and Teachers focuses on 8th graders from a Camden middle school in a four week, all-day program. Participants study LOGO and work on mathematical problem solving in the morning and participate in recreational activities in the afternoon.

- The Museum Education Enrichment Program brings 9,000 inner-city K-12 students into the museum to improve their understanding and appreciation of the visual arts as part of their daily lives through lessons and activities related to the seven annual exhibitions at the Stedman Art Gallery.

- Arts and Ideas, an interdisciplinary summer arts program for 7th and 8th graders from a Camden middle school, has the goal of motivating students to continue their education.

- Career Development Workshops are conducted at middle- and high school sites throughout South Jersey by the campus' Career Planning and Placement Office.

- Financial Aid Awareness Workshops are conducted in area high schools to assist parents and students with the completion of financial aid applications and to give them general advice on ways of dealing with the increasing costs of higher education.

- The Camden County Teen Arts Festival gives students, ages 13-19, an opportunity to present their work in the arts - dance, vocal and instrumental music, creative writing, visual arts, and theater - for critiquing by professionals, as well as to participate in a series of discussions and hands-on workshops.

- The Early Bird Program brings to campus sixty 9th graders from three Camden high schools for a summer science enrichment program.

- Parent/Adolescent Collaboration for Education is a summer program with an academic year follow-up for 7th-8th graders from a Camden middle school to provide experiences with computer electronics, language programming, and microprocessor hardware, as well as field trips to related industries. Pre- and post-program contact with parents encourages them to consider college as a viable option for their children.

Rutgers, Newark

- Saturday Academy. A program of tutoring, mentoring and SAT/ACT preparation for local high school juniors, to support their aspirations to attend college and baccalaureate degree programs.

- Ninth Grade Transitional Program. A program focused on Newark's Central High School, designed to provide support, counseling and supplementary instruction to students making the transition from elementary to secondary education, and thereby to reduce the high school minority dropout rate among students at the secondary level.

- The Algebra Project. Hosted by Rutgers-Newark and sponsored by major grant support from the New Jersey Department of Education, this program seeks nothing less than a complete revamping of the mathematics curriculum in New Jersey's elementary, secondary and higher education institutions. During the 1990-91 academic year, the experimental curriculum developed by the Program will be implemented in classrooms in over seventy school districts across the state of New Jersey.

- Minority High School Research Apprentice Program. Sponsored by the Center for Pre-College Programs at Rutgers-Newark, this effort targets minority high school students who show interest and aptitude in the physical and natural sciences and places them as interns in the laboratories of scientists at Rutgers-Newark, where they participate in ongoing research projects. The Program aims at encouraging more minority students to pursue higher education and subsequent careers in science and technology.

- 4-H Youth-at-Risk programs, in cooperation with schools, reached 35,000 7- to 19-year-olds in Newark, Camden, Trenton, and other urban areas with positive fun and learning experiences. Focal areas include employment skills, academic shortfalls, concern for the environment and conservation of natural resources, school-age child care and life skills.

Rutgers, New Brunswick

- The Center for Historical Analysis has established an Institute for High School Teachers that is reaching out to 75 to 100 teachers annually in seven different school districts in Middlesex County. The program's aim is to improve the quality of secondary instruction through seminars on recent research in various social science and humanities areas, such as environmental risk and history and black women writers.

- The Center for Mathematics, Science and Computer Education draws upon Rutgers faculty from a number of disciplines - biology, chemistry, computer science, education, engineering, environmental science, mathematics, meteorology, physics, and psychology - to conduct a variety of programs for teachers and students from schools throughout the state and, in some cases, from across the nation. Among the programs sponsored by the Center are:

  The Rutgers-Kenilworth Project in School Mathematics, which aims to improve K-8 mathematics instruction in the Kenilworth School District and to create a model that can be used in other districts. The focus is on meaningful mathematics learning and problem solving.

  The Rutgers-New Brunswick Schools Mathematics Project, modeled after the Kenilworth Project described above, is designed to improve children's mathematical understanding and reasoning and their problem solving and critical thinking skills through a hands-on, discovery approach. The program first works with teachers and principals from all eight public and the three parochial elementary schools in New Brunswick in a series of workshops, and then moves to assisting teachers to develop and use appropriate instructional materials in their classrooms.

  Children with Partners, an extension of the Rutgers/New Brunswick Schools Mathematics Project cited above, is a Saturday morning program for 3rd-6th graders from New Brunswick public and parochial elementary schools and their parents/sponsoring adults. The program aims not only to extend the mathematical understanding the children have gained in their regular classroom

setting, but also to promote parents' understanding of and involvement in their children's education.

The Rutgers-Highland Park Schools Project Tool/Chest is a collaborative effort that places computers in the classroom for use in a variety of subject areas, including a writing program in which children author books of stories and poetry.

The Network for Excellence in Teaching Science is a statewide consortium of faculty from colleges/universities and district science supervisors that provides workshops for teachers from urban and rural low-wealth schools to encourage the use of hands-on science activities in the elementary grades.

The Rutgers/New Brunswick Elementary Science Residents Programs places Rutgers science graduate students in the New Brunswick public schools to work as consultants with upper elementary students and teachers.

The Evaluation Studies and In-Service Institutes have been offered in mathematics and science for a number of school districts; they typically provide specific recommendations for curricular and educational improvement.

Summer Institutes and Academic Year Programs include: Good Ideas in Teaching Pre-Calculus, The Probability and Statistics Institutes, The Leadership Program in Discrete Mathematics, The Young Scholars Program in Discrete Mathematics, The Institute for New Mathematics Teachers, The Institute for New Science Teachers, The Rutgers/Industry Secondary Science Modules Program, The National Leadership Institute for Teachers of Physics, The National Leadership Institute for Teachers of Biology, The Merck/Rutgers Elementary and Middle School Sciences, Live Weather Data, The Introductory Tool/Chest Institute, The Advanced Tool/Chest Institute.

- The High School Scholars Program affords academically superior students the opportunity to study full- or part-time at the University.
- The Speakers Directory is a non-recruitment program that makes over 50 faculty, alumni and staff available to schools for presentations in classes, clubs and assemblies on a wide range of topics, including those specifically tailored to the school's request.
- The Consortium for Educational Equity trains and assists school teachers and administrators to provide equal educational opportunity, with a focus on gender equity. The program includes training

teachers to conduct hands-on math and science activities for parents and children, and seminars for school librarians to assist them in making acquisitions appropriate to the goals of equal educational opportunity and gender equity.

- College Discovery is an academic enrichment and apprenticeship program for high school juniors and seniors. It offers minority and disadvantaged students having academic promise an introduction to careers in science and technology in a summer residential program that includes research apprenticeships and academic courses. Students can earn college credit upon successfully completing the program.

- Big Sister/Little Sister is a program designed to enhance the (1) language skills of a group of 7th-8th graders in the Paul Robeson School in New Brunswick; and (2) instructional skills of the Douglass College students that serve as big sisters.

- Minority Introduction to Engineering is a summer program directed to junior and senior high school students that aims to promote engineering as a profession for minority and disadvantaged students attending New Brunswick High School who are interested in engineering careers.

- The New Jersey Summer Arts Institute offers 7th-12th graders a program of basic courses and advanced training in visual, performing and literary arts. Leadership seminars, career counseling and college credits are available in the program.

- Rutgers Upward Bound is for 9th-12th graders from low-income families. The program has summer residential and academic year components that seek to develop the skills and motivation students need to succeed in college. In addition to academic courses, the program provides academic counseling, tutoring and cultural activities.

- The Pharmacy Education Program introduces high school students from underrepresented groups to careers in pharmacy and science. A summer enrichment program is available for rising seniors and entering college freshmen. Specialized instruction, as well as tutoring, are offered in biology, mathematics, chemistry, and communication skills.

- The Deans' Summer Scholars Program is a competitive summer program for New Jersey high school juniors that offers an opportunity to experience academic, social and cultural aspects of college life

through enrollment in two college courses and participation in a variety of career development, recreational and social activities.

- The Rutgers Physics Learning Center offers 5th-12th grade students opportunities to visit the Center for hands-on learning. Programs are also presented at school sites.

- Creating Works on Paper: From Ideas to Conception is a program offered by the Zimmerli Art Museum that gives 5th-8th graders a detailed look at the steps involved in print-making and in the creation of a children's book.

- Zimmerli Art Museum Education Programs include: (1) guided tours centered around the Museum's special- or permanent-collection exhibitions; (2) Saturday afternoon arts activities for children of various age groups, K-12; (3) Youth Art Day, an annual program of arts experiences designed to encourage art education.

- The Science Institute for High School Women is a residential summer and an academic year program for 11th-grade girls that focuses on gender issues related to study in mathematics and science with the aim of encouraging women students to pursue a major in these fields when in college.

- The Seminar Series for Teachers is an academic alliance program for high school teachers of social studies, humanities and other disciplines in central New Jersey school districts. The program aims to improve teaching by acquainting participants with the latest scholarship and major issues in the seminar's subject areas, which have broad historical, social themes. New materials for teaching at the secondary level are assessed.

- The Summer Institute and Network for Social Studies Teachers is a three-week summer program for teachers of social studies at New Jersey high schools designed to upgrade teachers' current knowledge of American government. Participants return to campus several times during the academic year for special lectures and discussions.

- The Community Practicum with North Plainfield Schools assigns for an academic year graduate students in social work to: assess the needs of the schools and particular communities; serve as consultants and trainers of school personnel and community agencies; increase coordination and utilization of existing resources; provide direct services and develop new resources or patterns of services for students and their families in order to meet their psycho-social needs.

- The New Jersey Writing Project focuses on having teachers write in order to discover the importance of composition and their own writing activities as central to the ultimate goal of improving student writing. Since its founding in 1977, one thousand teachers have participated in 34 workshops in the state. In addition, 3,000 teachers from 26 other states have participated in the project. As a trainer-of-trainers, the Project is designed to have a multiplier effect.

- The Recreational Reading Program emphasizes providing enjoyable experiences with children's literature as a means of effecting improvement in reading achievement, use of literature and attitudes toward reading. The program involves 2nd graders in the Franklin Township and New Brunswick schools.

- The Rutgers/New Brunswick Reading and Writing Project is a staff development effort designed to strengthen and update teachers' knowledge and skills in these areas. Emphasis is placed on connecting reading and writing with each other and with all subjects across the curriculum. Special emphasis is placed on the rich array of children's literature. A strong parent-participation component is also stressed.

- The Rutgers/New Brunswick Home-School Connection Project has the literacy-related goals of (1) increasing parental awareness and skill in helping children become competent learners; (2) helping the school recognize and make better use of the talent, experience and interest that parents bring to their children's learning; (3) using common themes and materials to link the school curriculum with home-based activities; and (4) extending parents' views of themselves and their children as learners. Presently involving 50 kindergarten children in one New Brunswick school, the Project is planning to expand and include pre-school classes with a total project size of 300 children.

- The Rutgers Geology Museum presents an annual Open House Weekend that attracts thousands of children and their parents. In addition, the museum provides guided tours which focus on New Jersey geology for approximately 150 groups of children from schools throughout the state.

- LEAD is a project designed to develop (1) an instrument to assess the leadership skills of educational administrators; and (2) an accompanying training program.

- The New Jersey Network for Family Life Education provides resources and technical assistance to schools to support their mandated K-12 program in family-life education.

- Linking Schools and Community Services is a program that develops partnerships of schools and local human services agencies in order to strengthen the ability of schools to respond to the social and psychological needs of children.

- The New Jersey Geographical Alliance aims to improve the teaching of geography in the schools. The Alliance offers a 2-week summer institute for 7th-12th grade social studies teachers as well as workshops in the fall.

- The Watchung School Project, a partnership between this science magnet school in Montclair, New Jersey and Cook College, focuses on improving science teaching and curriculum in pre-school through grade 5. The project provides training workshops for school staff and then develops collaboratively with the teachers' elementary science teaching modules.

- Organizational Leadership, a project involving six school districts, is designed to develop more energetic and imaginative leadership and management for schools and school systems.

- The South River Middle School Project is a model program that provides intervention for high-risk 7th and 8th graders to prevent their school failure and substance abuse. Teachers are trained in program techniques to apply to individual students.

- Sharing Decision Making aims to improve the quality of school instruction by helping different constituencies in a public school system come together and solve systemic problems. Teachers, administrators, and board members in Flemington, New Jersey are presently working with the Graduate School of Applied and Professional Psychology to develop a program model.

- Social Problem Solving and Decision Making is a large, on-going project involving 2,000 regular and special education students in grades K-6 in nine school districts. The program, which helps children make thoughtful decisions about their lives, aims to promote social competency and prevent substance abuse, school failure and dropout.

- The Peer Leadership Program trains students and teachers in eight urban high schools to develop leadership skills for the purpose of reducing drop-out rates.

- The Community Volunteers Program trains 100 members of the community in Passaic and Paterson to work with high school students to help them remain in the school.

- The Preventative Adolescent Suicide Educational Program trains school personnel, students and parents in seven high schools to know what to do when confronted with a suicidal teen.

- Special Education Services are examined in a number of evaluation projects designed to: enhance the quality and effectiveness of special education provided for students handicapped by learning disabilities, emotional disturbances, conduct disorders, or developmental disabilities; and provide more effective and appropriate individualized instruction.

IV. *Rutgers and State Health*

- Through the Faculty of Planning's Department of Urban Studies and Community Health, Rutgers collaborates with the University of Medicine and Dentistry of New Jersey to provide bachelor, master and doctoral degree study in Public Health. Further, it contributes to public education on public health issues, like AIDS, as well as providing an important base for applied and theoretical public health research.

- Urban gardening programs in Camden, Newark, East Orange and New Brunswick motivated more than 5,300 residents to create 1,800 community and backyard sites growing 45 varieties of vegetables, small fruits and other food crops; in Newark alone the crops were worth $666,887. Elderly, low-income black and Hispanic families were benefited; additionally, mentally handicapped adults and youth found great joy in gardening as therapy.

- The Institute for Health, Health Care Policy, and Aging Research (IHHCPAR) has undertaken a research program to help policy makers to devise cost-effective means of providing essential support services to AIDS patients and their families.

- IHHCPAR has close ties with the New Jersey Division of Mental Health and Hospitals for studying the problems of the severely mentally ill in New Jersey. More than two dozen independently funded research projects have been established under the aegis of the IHHCPAR.

- Rutgers College of Nursing was chosen as one of 11 Teaching Nursing Home Projects funded by the Robert Wood Johnson Foundation.

- Some 5,000 low-income families with young children and 4,840 youths were taught nutrition/food shopping/safety lessons through the Cook College Expanded Food and Nutrition Education Program in their home communities, areas of urban or rural poverty. All are at-risk nutritionally and are from high-risk situations such as drugs, crime, sub-standard housing, etc.

- The Department of Agricultural and Resource Management agents conduct a series of programs geared to increasing public awareness of tick habits, tick identification and management, and recognition of Lyme Disease symptoms.

- A faculty member in the College of Pharmacy was recently awarded an $8 million federal grant to study the mechanisms of cancer causation and prevention, with specific attention to the effects of nutrition on cancer.

V. *Rutgers and the Justice System*

- Faculty and students at Newark's Law School have been involved in landmark litigation to reform the system of public education finance, to preserve racial balance in the public schools, and to provide access to affordable housing.

- Graduates from Rutgers' two law schools in Camden and Newark serve in Congress, state government, state superior courts, civil and criminal courts.

- The School of Criminal Justice has been involved in numerous projects in collaboration with the schools and the Jersey City Police Department to investigate drug prevention strategies.

- The Faculty of the School of Criminal Justice chair as well as staff special committees of the New Jersey Criminal Disposition Commission.

- Faculty from the Center for Alcohol Studies have served on state parole boards.

- The School of Business has been involved in state projects which developed recommendations for the assessment of interest on child support payments.

VI. *Rutgers and Housing, Human Services, and Transportation*

- The Rutgers Bureau of Government Research publishes the New Jersey Legislative District Data Book, which provides statistical and directory information on New Jersey's 40 legislative districts and the communities of which they are composed. It provides valuable basic

data for legislators, legislative staff, lobbyists, news media, and the general public.

- The Faculty of Planning is the outstanding center for the education and training of urban and regional planners in the entire Boston-to-Washington regional corridor. Its expertise in economic, housing, transportation, and city and community planning research is employed in faculty consultancies to nearly every major government agency in New Jersey and the region.
- The School of Social Work has worked with the Department of Human Services to train social workers in family preservation methods.
- The Center for Community Education has worked with the state to develop a Task Force on Adolescent Pregnancy which resulted in the National Governor's Association citing New Jersey as one of 10 states with the most comprehensive approach to adolescent pregnancy/parenting.
- The Center for Urban Policy Research calculates the affordable housing requirements for every municipality in New Jersey under the requirements of the Mount Laurel II decision.
- The Center for Urban Policy Research is completing a multi-year study on the mitigation of disputes over the dumping of hazardous wastes.
- A faculty member in the Department of Political Science serves as the Chairman of the National Housing Institute and numerous New Jersey boards and commissions having to do with economic opportunities and health.
- The Rutgers Bureau of Government Research has broad responsibility for providing training, research and technical services for state and local government throughout New Jersey. Each year its 500 courses draw 15,000 participants. This is a service that is not obtainable from any other source in New Jersey.

VII. *Rutgers and Cultural Activities in the State*

- The Mason Gross School of the Arts has worked with the New Jersey Symphony to build music performances in New Jersey.
- Mason Gross School of the Arts has provided ongoing visual arts, theater, music and dance exhibits and performances and associated enrichment activities.
- Mason Gross School of the Arts supports and produces the Rutgers Summerfest, a summer festival of music, dance, theater and visual

arts attended by over 58,000 people from 20 states. The festival has become a well known attraction for out-of-state visitors.

- The Office of Hispanic Arts has established a network of close to 200 Hispanic artists in the state and over 20 arts and cultural organizations to which technical and information services are provided.
- Offering New Jersey's only comprehensive music program, Mason Gross School of the Arts provides a full range of professional programs in music and the arts which provide a focal point for the development of cultural activities within the state.
- The Faculty of Arts and Sciences-Newark Department of Music is currently organizing the second New Jersey Choral Festival, which is slated for performance in the spring of 1991. As part of the Festival, the Department will host Professor Wolfgang Unger, Conductor of the Leipziger Universitatschores (Leipzig, Germany) as guest conductor.
- As part of its focus on community outreach, the Department of Theater Arts and Speech (Rutgers-Newark) sponsors the production of dramatic works by local playwrights. In addition, the Department continues its work on the generation and preservation of dramatic oral history memoirs of senior citizens in Newark.
- With past and anticipated future support from the Geraldine Dodge Foundation and the Prudential Foundation, the Dean of the Faculty of Arts and Sciences at Newark and the Department of Academic Foundations are hosting the Second Annual New Jersey High School Poetry Contest during the 1990-91 academic year.

With the new decade before us, a review of those gains is certainly pertinent. The accomplishments of the 1980s are the source of increased pride in our state and its State University. Looking forward to the 1990s is even more critical because the momentum that was achieved in the last decade must be built upon so that the state and Rutgers can continue meeting the changing economic, social, political, and cultural challenges which lie ahead.

The state's commitment to higher education in the 1980s must be continued in order to maximize return on the investment that has already been made. Building educational programs, keeping up with scientific instrumentation and library developments and research opportunities, leveraging University funds for external support for grants and contracts, responding to new needs for education and research in the industrial and public agencies of the regions, and maintaining a responsiveness to the changing world around the University requires not only commitment and resources, but a continuity of effort which was realized in the 1980s.

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Impact of Past Budget Reductions

The proposed reductions to the Rutgers budget for fiscal year 1992 add to already deep reductions of state appropriations and withholding of salary increments in the past three years. In 1990-91 alone, the combined amount of the appropriation cut and salary adjustment shortfall for the General University and the Agriculture Experiment Station was $47.2 million, 20 percent of state funding (Exhibit 12).

The past three years of resource cuts have had profound consequences for the institution. Rutgers attempted to cut its budget while at the same time trying to protect the central academic mission of the University. The cuts, however, were too deep, and many adverse outcomes were necessary, of which the following are only a sampling:

- fewer courses were offered;
- teaching loads were increased;
- salaries were reduced;
- in over 300 teaching positions full-time faculty were replaced by part-time instructors;
- searches for key positions within the University were deferred;
- historically underfunded academic department support budgets were reduced; in some cases by 50 percent, leaving departments short of supplies, help, and equipment;
- travel funds for professional development were cut;
- postdoctoral funding was reduced;
- the Zimmerli Museum reduced its hours (closed during the entire month of August);
- cocurricular student programs were reduced (e.g. Douglass Language and Cultural House programs);
- library acquisitions were reduced;
- computer acquisitions and maintenance of existing equipment were reduced; and
- student health services were decreased.

Impact of the Proposed Budget Reductions (FY 1992)

The above reductions, as well as many others, were made with reluctance, but in the spirit of good citizenship in assisting the state in making the financial adjustments necessary to the economic stability of the state, and with the belief that such reductions would be temporary and reinstatement of previous funding levels would be imminent. The resource cutbacks planned for fiscal year 1992 go beyond what can be absorbed, particularly considering the cumulative effects of the past three years' reductions. Since the possibility of such cuts was announced, the University has conducted a comprehensive analysis of how decreases in the resource base might be absorbed. Unfortunately, it will be impossible to protect the academic programs with the proposed additional budget reductions. Currently, academic units and libraries represent by far the greatest proportion of the University's budget, while support units such as health, counseling, advising, financial aid staff, University police, residence life, student affairs, deans and other administrators comprise a much smaller part. Administrative and support units suffered a greater proportion of the past years' reductions. They cannot undergo another round of cropping without significantly affecting the fundamental student services and efficient management and operation of University functions. It has become increasingly difficult for the support units to continue to protect the academic units from the full impact of the proposed budget reductions. In terms of tuition, students have borne their share of the pain of the reductions in state support, with increases of 7.0 percent in 1988, 13.0 percent in 1989 and 10.9 percent in 1990. Rutgers has markedly increased its rates in the 1980s and cannot continue to raise its cost beyond inflation rates without damaging its accessibility to state residents. A fourth year of budget cuts will profoundly affect the academic mission of the institution.

To highlight just a few of the projected outcomes:

- undergraduate enrollments reduced;
- library hours reduced;
- planning for new programs eliminated;
- selected academic programs suspended;
- computer and library system development projects suspended;
- over 300 more faculty and staff positions eliminated and/or filled temporarily by part-time employees;
- course offerings significantly reduced (current estimate: over 1,500 courses);
- honors programs curtailed;

- academic and student support services cut;
- class sizes increased;
- purchases of instructional equipment and research instrumentation dramatically reduced;
- bus service reduced in New Brunswick;
- maintenance of instructional equipment and research instrumentation deferred, placing the University's significant investment in jeopardy;
- maintenance deferred on existing buildings and grounds;
- general upkeep of the physical plant reduced;
- public safety, finance and accounting, environmental services, insurance coverage, athletics, admissions, financial aid, registrar, personnel all reduced; and
- further reductions in library book and scholarly journal acquisitions.

The impacts on undergraduate and on graduate education and research will be extremely serious. The progress made in the 1980s was in large part due to the hiring of senior faculty with established reputations and promising junior faculty, coupled with the support of those faculty through construction of facilities for teaching and research, purchase of instrumentation, and strengthening of graduate programs. The best graduate students apply to schools that employ the finest faculty in their fields, offer competitive financial support, and provide state-of-the-art facilities and equipment. Suspension or reversal of these efforts will most assuredly be felt in national rankings of academic departments and disciplines, and in Rutgers' ability to attract and retain the outstanding faculty and graduate students necessary to preserve national leadership in University disciplines and professions.

This in turn affects the quality of undergraduate education because one cannot be considered apart from the other. Outstanding accomplishment in graduate education and research means current and exciting undergraduate education. Students trained by faculty at the cutting edge of their fields are, in turn, graduated at the leading edge, making them attractive employees to competitive industries. With regard specifically to teaching, faculty members have already increased their teaching responsibilities and are bearing their share of the budgetary burden.

In summary, the proposed budget cuts jeopardize the investment the state has made in its University. This investment is essential to the University's

future service to New Jersey. Rutgers has made remarkable progress in moving into the ranks of this country's most distinguished state universities, universities with a long and exceptional heritage of broad service. Recruitment of those students and faculty essential to maintaining and building on this progress will become virtually impossible if the proposed reductions are added to the funding shortfalls the University has absorbed over the last three years.

A Look Ahead to the 1990s

This is a critical time in Rutgers' history. Great progress has already been marked. The University has been mobilized for future development and distinction. Rutgers has been steadily building its strengths for a generation, developing a solid evolutionary growth and a forward momentum. Eroding support for Rutgers at such a critical juncture will most assuredly have much larger costs than those required today. The stumbles and starts of uneven commitment will not permit Rutgers to improve its position among the Berkeleys, Illinois, Michigans, Wisconsins, and Chapel Hills of the country. Resource cuts will abrade the competitive edge that Rutgers so tirelessly and successfully pursued in the 1980s. Even through the budget cuts of the last three years, Rutgers made tough decisions, and tried valiantly to protect its academic infrastructure so as not to wear away the hard-earned accomplishments of the last decade. With some unavoidable cuts to the academic process, the academic core is now seriously in jeopardy, and the effectiveness of New Jersey's partnership with its State University is under erosion. Rutgers is a necessary part of New Jersey's progress, but its contribution is in danger. Rutgers' aspiration to be in the top tier of public universities nationally is a worthwhile goal that is necessary to New Jersey's political, social, cultural, and economic future.

New Jersey ranks 6th in state/local revenues collected per capita, and yet the state ranks 46th among the fifty states in the proportion of tax revenues dedicated to public higher education (Exhibit 13). Higher education represented only 7.7 percent of New Jersey's budget in FY 1991, and that percentage has slowly been diminished over the last decade (Exhibit 14). A recent article in *The Chronicle of Higher Education* showed that New Jersey was one of only three states that decreased their funding to higher education over the last two years (Exhibit 15). These indicators also illustrate that the gains of the 1980s were made with relatively modest contributions from the state's revenues, demonstrating that New Jersey invested well. By any measure one wishes to use, Rutgers is a much finer institution today than it was ten years ago, and the costs to the state were small in relation to the support received by other major state universities (Exhibit 16). For the decade ahead, maintaining those levels of support is simply not sufficient. The University must have increased resources in order to continue its drive for excellence. Its potential for even greater service to New Jersey is unlimited. If state support is maintained and expanded, the University is positioned to attract from other sources an increasing portion of its needs for additional resources. The University's concern for maintaining its accessibility to the citizens of New Jersey makes it extremely reluctant to consider penalizing the middle class by continuing to raise tuition beyond the rate of inflation in order to compensate for the withdrawal of state support.

Without a doubt the state has numerous other issues it must address, and those responsibilities are difficult to meet in uncertain economic times.

Rutgers has previously assisted the state in meeting those responsibilities and will continue to do so. A strong Rutgers will continue to be an invaluable resource for New Jersey.

A number of leaders in recent months have predicted that the country's ability to solve social problems and to address scientific, medical, and technological challenges will depend on its commitment to the advancement of knowledge. Advancement of knowledge entails research, teaching, service, technology, leadership skills, and all of the components and expressions of a vital and imaginative intellectual climate. Rutgers is better prepared now than ever to work with New Jersey to meet those challenges. New Jersey's need has never been greater.

The pursuit of outstanding achievement is not a lofty exercise in elitism. It is the marrow of survival for the 1990s and beyond into the 21st century. Standards of high quality must be honored since they are the bellwethers of progress and the University's products will be tested against the most intense national and international competition. It is not possible to gain momentum and to leverage investments in education to improve the quality of life in New Jersey by offering uneven support to the State University.

The investment that the citizens of New Jersey have made in their State University has already netted a rich return in technology transfer and the incubation of innovation reflected in the emerging New Jersey economy, in the education and training of New Jersey's best and brightest students for the work force of today and tomorrow, and in the areas of the environment, the public schools, the health and well-being of citizens, the justice system, the arts, and the human services sector, including housing and transportation. Much is at stake in considering new and deeper cuts to the University's operating budget. The state is in real danger of losing its investment. What took years to build can be torn down very quickly. A great university is paradoxically a strong but extremely fragile structure. The withdrawal of vital resources may well force a dramatic decrease in the very high quality and large quantity of instruction, research, and public service that Rutgers now accomplishes for New Jersey. In view of the magnitude of the reductions contemplated, it would not be excessive to characterize the plight of the University as a crisis. If salaries are cut and academic support funds are withdrawn, it is highly probable that some of the Rutgers faculty will leave and many others who remain will be demoralized. The ability of the faculty to teach, to do original work in their fields, and to offer programs that serve the New Jersey public will be crippled by overcrowded classes, deteriorating facilities, and outdated equipment.

The citizens of the state are justifiably proud of the achievements of Rutgers, The State University of New Jersey. In its position at the summit of public education, it has been one of the state's highest priorities and greatest successes. New Jersey's State University has at last taken its place among

the best public universities in the nation. To cut it down now would be a shortsighted waste of the national reputation and great capacity for service to New Jersey so carefully nurtured to its present height. New Jersey deserves to keep the great university it has built.

Francis L. Lawrence
President
Rutgers, The State University of New Jersey
January, 1991

Appendix 1

Centers and Institutes for Research and Science

The following is an illustrative list of Rutgers centers and institutes for research and science:

Advanced Technology Centers - cooperatively funded by industry and the state and designed to transfer technology from University laboratories to New Jersey industries.

- Center for Ceramic Research
- Fiber-Optic Materials Research Program
- Center for Advanced Food Technology
- Center for Advanced Biotechnology and Medicine (with UMDNJ)
- Center for Computer Aids for Industrial Productivity
- Center for Plastics Recycling Research
- Center for Agricultural Molecular Biology
- Technology Extension in Fisheries and Aquaculture

Environmental and Occupational Health Sciences Institute (with UMDNJ)

Institute of Marine and Coastal Sciences

Bureau of Government Research/Department of Government Services

Cancer Research Center

Walt Whitman Center for Culture and Politics of Democracy

Institute for Health, Health Care Policy, and Aging Research

Center for Molecular and Behavioral Neurosciences

Center for Critical Analysis of Contemporary Culture

Center for Historical Analysis

Laboratory for Surface Modification and Interface Dynamics

Center for Discrete Mathematics and Theoretical Computer Science

Center for Mathematics, Science, and Computer Education

Center for Urban Policy Research

American Affordable Housing Institute

Center for Policy Research in Education at Eagleton

Center for Alcohol Studies

Mathematics and Science Center - a collaborative project with the public schools

Waksman Institute of Microbiology

Computer Science Research Institute

Center for Theoretical and Applied Genetics

Remote Sensing Center

Environmental Communication Research Center

Center of Excellence in Controlled Environment Agriculture

Eagleton Institute of Politics

Institute of Management and Labor Relations

Center for Operations Research

Center for Negotiation and Conflict Resolution

Center for Entrepreneurship

Appendix 2

Academic Support Programs

Programs illustrative of the type in place for the improvement and support of undergraduate education:

- The Gateway Program - provides special academic support to students who, according to the results of their placement exams, need additional preparatory work in specific areas.
- The Math and Science Learning Center (Rutgers, New Brunswick) - designed to enhance student skills in the sciences and math.
- Office of Educational Support Programs - academic support services for minority students.
- Educational Opportunity Fund - a state-funded program of extensive support for economically and educationally disadvantaged students (all 3 campuses).
- Academic Foundations Center - an umbrella organization for an array of instructional and support resources for academically disadvantaged undergraduates. It includes the Academic Foundations Department, which offers a range of developmental courses in writing, reading, math, science, and study skills. The Academic Foundations Center also includes the Learning Center, which houses various support resources including a micro-computer lab and peer-tutoring in virtually every discipline on campus. Newark's Educational Opportunity Fund Program is also integrated into the Academic Foundations Center.
- The Model Program - funded by a special grant from the Educational Opportunity Fund to encourage minority and academically disadvantaged students to pursue study in the sciences and mathematics. It includes a summer program after the freshman year to expose students to research in science labs, for instance at Bell Labs. Summer students also have extensive instruction in math.
- Minority Biomedical Grant - funded through an NIH grant, this program provides support for a variety of faculty who bring undergraduates into their laboratories to work on research projects.
- Freshman Studies Program - extensive support for first-year for academically underprepared students (Livingston College).
- Learning to Learn Program - Learning skills program for students (Cook College).
- Undergraduate Minority Science Program - created to help minority students persist in natural science majors.

- Solid Groundwork in Education in Math and Science - Cook College program to assist students in entry-level courses to improve retention in the sciences. Now integrated with New Brunswick's Gateway Program.
- Early Warning System - designed to alert students having academic difficulty early in the semester (Rutgers-Camden).
- External reviews of all undergraduate (as well as graduate) programs.
- Undergraduate Research Internships - designed to involve undergraduates in research with faculty.

EXHIBITS

Exhibit 1. Enrollment Summary, Fall 1990

Exhibit 2. Enrollment by Gender and Racial/Ethnic Categories

Exhibit 3. Summary of Degrees Conferred, 1989-1990

Exhibit 4. Sponsored Research and Programs

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Exhibit 15. Two-Year Changes in State Appropriations for Higher Education

Exhibit 16. State Appropriations for Public Universities, 1990-1991

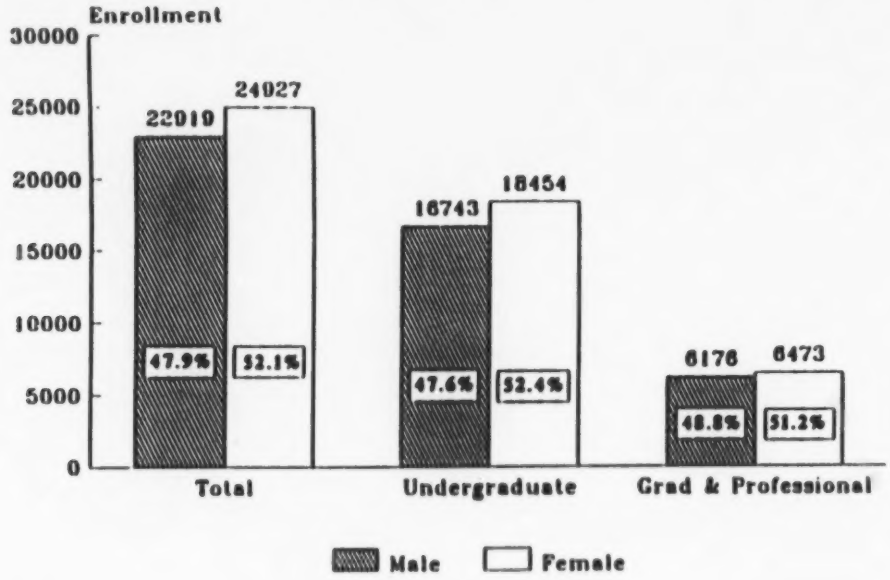
Exhibit 1

ENROLLMENT SUMMARY, FALL 1990

Level	Number Enrolled
Undergraduate	
Camden	4,128
Newark	5,892
New Brunswick	25,044
Subtotal	35,064
Graduate/Professional	
Camden	1,205
Newark	3,739
New Brunswick	7,899
Subtotal	12,843
Total	47,907

Source: University Registrar

Enrollment by Gender and Racial/Ethnic Categories[1]



	Total		Undergraduate		Graduate & Professional	
	Number	Percent	Number	Percent	Number	Percent
White	33,307	69.6	24,411	69.4	8,896	70.3
Black	4,599	9.6	3,958	11.2	641	5.1
Hispanic	2,702	5.7	2,300	6.5	402	3.2
Asian	4,787	10.0	3,267	9.3	1,520	12.0
American Indian	91	0.2	66	0.2	25	0.2
Other&No Info	2,360	4.9	1,195	3.4	1,165	9.2
Total	47,846	100.0	35,197	100.0	12,649	100.0

(1) Opening fall 1989 headcount of full and part-time students

Source: Office of the Senior Vice President for Program Development, Budgeting and Student Services

Exhibit 2

Exhibit 3

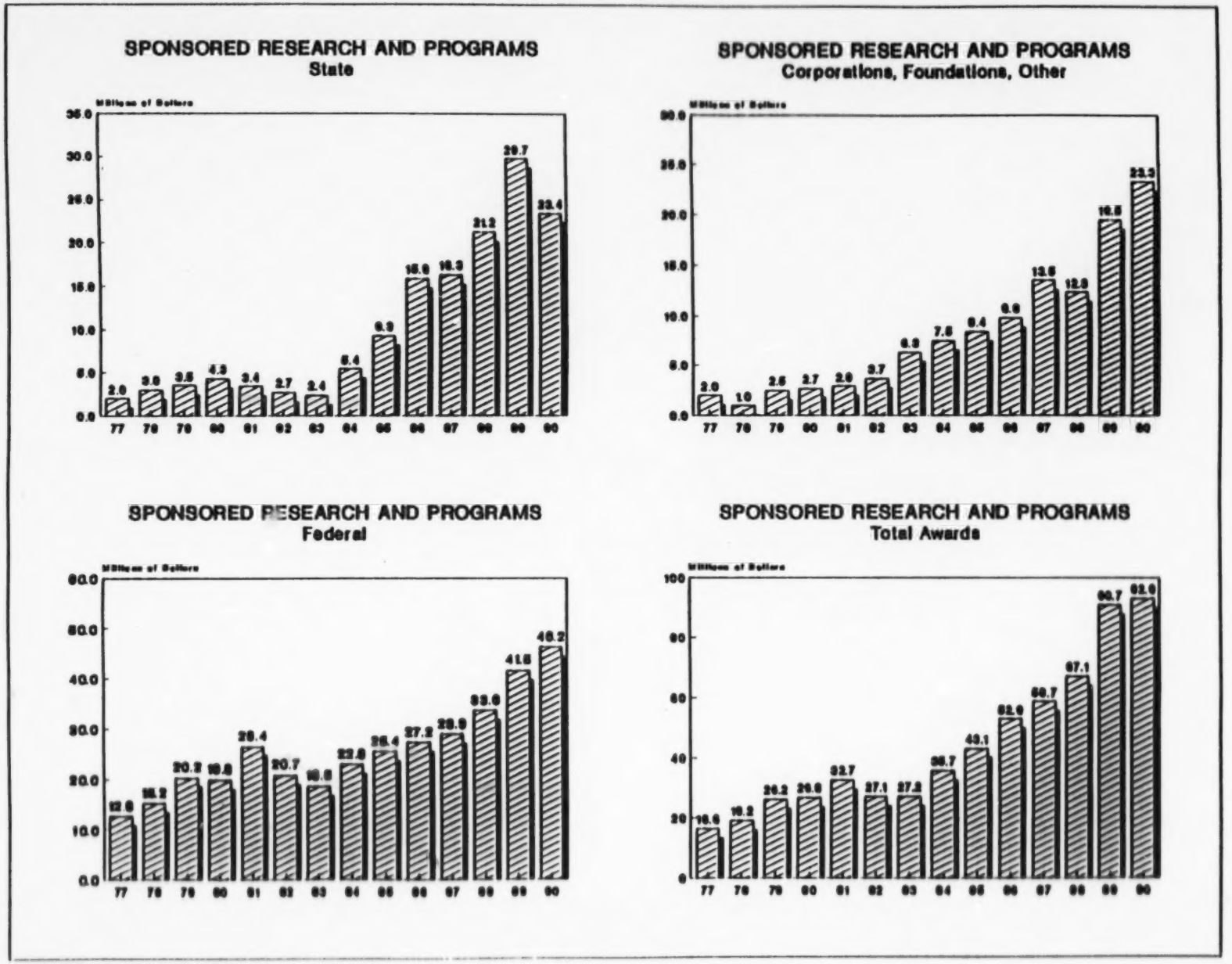
SUMMARY OF DEGREES CONFERRED, 1989-90

(Including Those Dated October, 1989, January, 1990, and May, 1990)

Type	Number Awarded
Advanced Degrees*	2,824
Baccalaureate Degrees	7,038
Total	9,862

* Doctor of Philosophy, Doctor of Education, Doctor of Musical Arts, Doctor of Psychology, Juris Doctor, Specialist in Education, Masters' Degrees

Source: University Registrar



Source: Office of the Senior Vice President for Program Development, Budgeting and Student Services

Exhibit 4

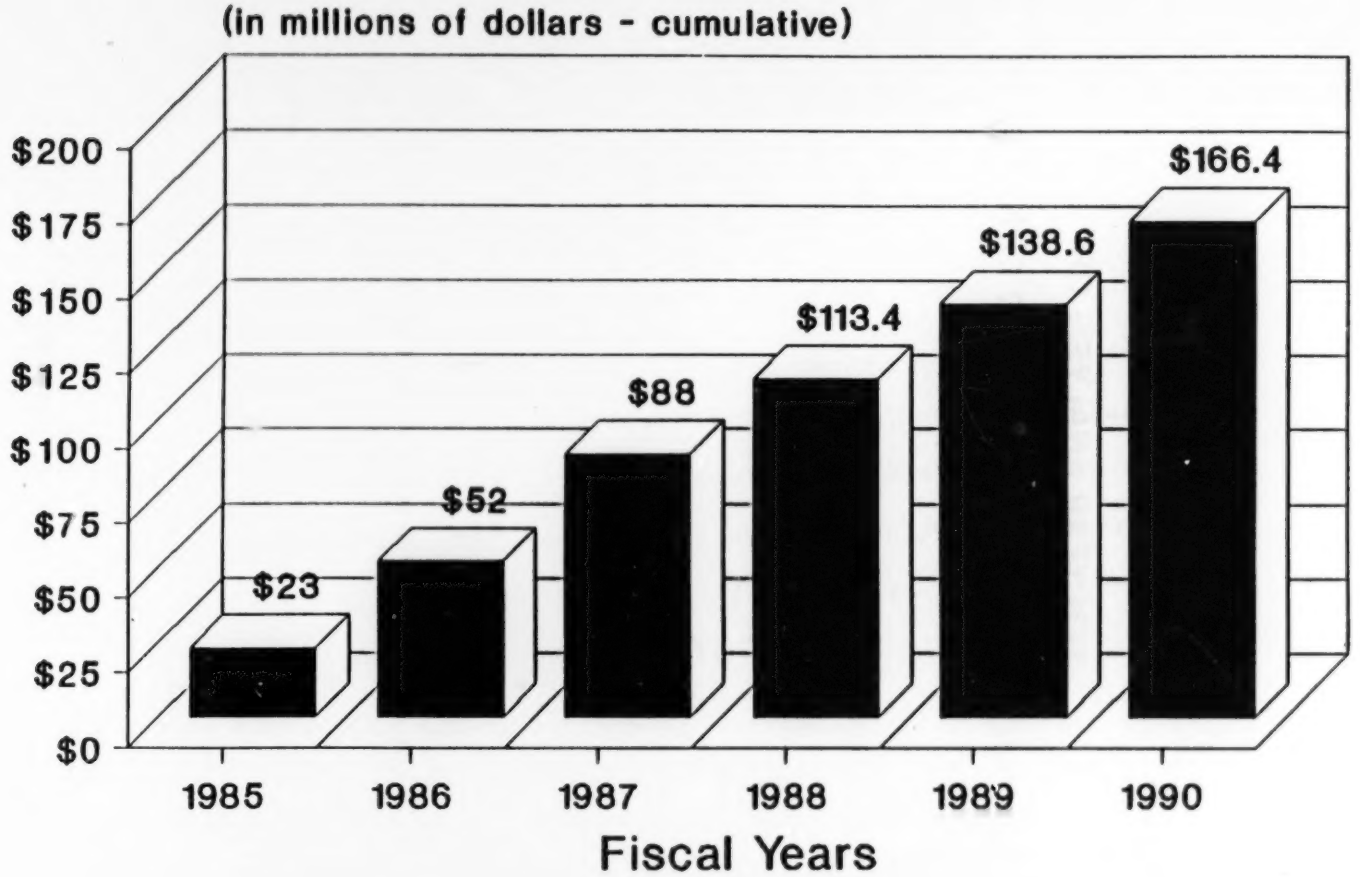
Exhibit 5

TEN YEAR ANALYSIS OF INDIRECT COSTS RECOVERED FROM GRANTS AND CONTRACTS

Fiscal Year	Amounts
1989/90	$ 12,205,000
1988/89	10,201,333
1987/88	9,061,724
1986/87	7,512,273
1985/86	7,313,552
1984/85	6,114,658
1983/84	6,199,454
1982/83	5,590,839
1981/82	5,402,919
1980/81	5,427,091

Source: Office of the University Controller 08/06/90

SUMMARY OF RUTGERS FUND RAISING
1985-1990



Source: The Rutgers University Foundation

Exhibit 6

Public AAU Institutions
1988 Minority Enrollment

School	American Indian	Asian	Black	Hispanic	Total % Minority Enrollment	White	Foreign	Total N
U of Arizona	1.0%	2.6%	1.6%	7.5%	12.7%	80.5%	6.7%	34,725
U of Calif.-Berkeley	1.0	21.7	6.1	9.4	38.2	4.6	7.1	30,102
U of Calif.-Los Angeles	0.7	19.8	6.4	11.9	38.8	54.7	6.4	34,371
U of Calif.-San Diego	0.6	17.6	3.0	8.4	29.6	65.9	4.4	16,410
U of Colorado	0.5	4.0	1.6	3.9	10.0	86.1	3.9	24,065
U of Florida	0.1	2.8	5.8	5.1	13.8	81.6	4.5	33,282
U of Illinois								
Chicago	0.2	12.5	9.1	8.5	30.3	64.4	5.3	23,986
Urbana-Champaign	0.2	6.8	4.8	2.5	14.3	78.7	7.0	38,337
Indiana U	0.1	2.0	3.8	1.3	7.2	87.6	5.2	33,776
U of Iowa	0.4	2.2	2.2	1.3	6.1	87.6	6.5	30,001
Iowa State U	0.1	1.3	2.1	0.9	4.4	87.7	7.9	26,475
U of Kansas	0.6	1.6	2.6	1.4	6.2	86.9	7.0	26,020
U of Maryland	0.2	7.4	8.6	2.4	18.6	75.1	6.3	36,681
U of Michigan	0.4	5.8	5.8	2.3	14.3	78.8	6.9	36,001
Michigan State U	0.3	1.8	6.1	1.4	9.6	85.3	5.1	44,480

Exhibit Z

Public AAU Institutions
1988 Minority Enrollment

School	American Indian	Asian	Black	Hispanic	Total % Minority Enrollment	White	Foreign	Total N
U of Minnesota	0.5%	3.0%	1.6%	1.0%	6.1%	90.0%	4.1%	61,556
U of Missouri	0.3	1.3	3.4	0.8	5.8	88.5	5.7	23,568
U of Nebraska	0.2	0.7	1.6	0.9	3.4	92.4	4.1	23,985
UNC-Chapel Hill	0.6	1.9	7.8	0.7	11.0	86.3	2.7	23,626
Ohio State U	0.2	2.5	4.7	1.2	8.6	85.9	5.5	53,661
U of Oregon	0.8	4.4	1.2	1.5	7.9	84.5	7.6	18,840
Pennsylvania State U	0.2	2.1	3.9	1.4	7.6	87.8	4.7	37,269
U of Pittsburgh	0.1	1.9	8.2	0.8	11.0	84.1	4.9	28,524
Purdue U	0.3	2.4	3.1	1.3	7.1	87.0	5.8	36,517
Rutgers-New Brunswick	**0.1**	**7.3**	**7.6**	**4.9**	**19.9**	**74.6**	**5.4**	**32,901**
SUNY-Buffalo	0.5	4.3	5.6	2.3	12.7	80.5	6.8	28,005
U of Texas-Austin	0.2	5.3	3.6	9.9	19.0	74.3	6.8	50,106
U of Virginia	0.0	3.7	7.6	0.6	11.9	85.3	2.8	20,802
U of Washington	1.0	12.6	3.1	2.1	18.8	76.5	4.8	33,460
U of Wisconsin	0.4	2.6	1.7	1.5	6.2	87.4	6.4	43,364

Source: Data extracted from statistics published in The Chronicle of Higher Education, "1988 Enrollment by Race at 3,100 Institutions of Higher Education." April 11, 1990, pp. A38-A46. Table prepared by Office of the President

Exhibit 7 (continued)

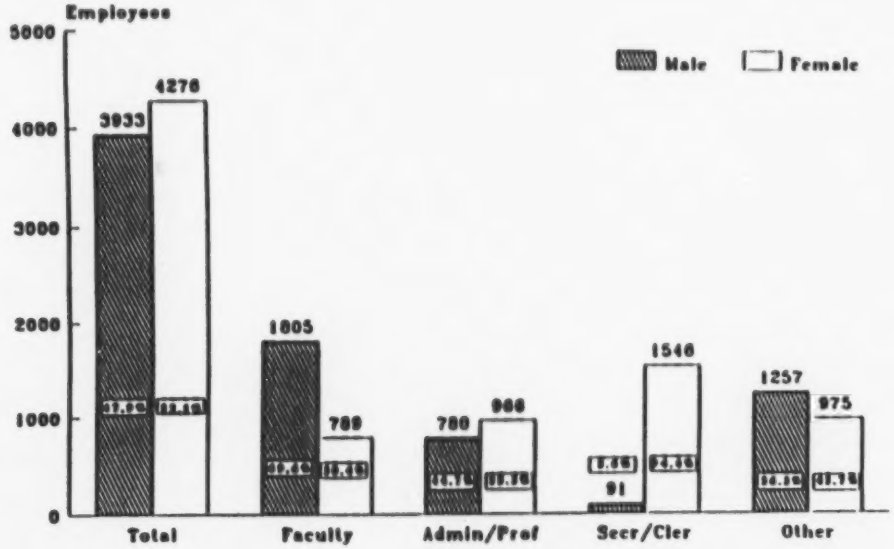
A COMPARISON OF FACULTY EMPLOYEE DATA AT RUTGERS AND A SELECTION OF PUBLIC RESEARCH UNIVERSITIES

	1987 Aggregated Ranking	1989 Aggregated Ranking	1987 Disaggregated Ranking	1989 Disaggregated Ranking
% of Asian Among Full-Time Faculty	1. UC-San Diego (10.8%) 2. UCLA (9.9%) 3. UC-Davis (9.4%) SUNY-Stony Brook 10. **RUTGERS (5.9%)**	1. UC-San Diego (11.4%) 2. UCLA (10.4%) 3. SUNY-Stony Brook (9.8%) 9. **RUTGERS (6.7%)** Penn State	1. UC-San Diego 2. UCLA 9. **RUTGERS-NB** 11. **RUTGERS-N** 16. **RUTGERS-C** Florida	1. UC-San Diego 2. UCLA 3. SUNY-Stony Brook 9. **RUTGERS-NB** 11. **RUTGERS-N** 14. **RUTGERS-C** Washington
% of Blacks Among Full-Time Faculty	1. **RUTGERS (5%)** 2. SUNY-Buffalo (4.2%) 3. Maryland (3.8%)	1. SUNY-Buffalo (5%) 2. **RUTGERS (4.9%)** 3. Maryland (3.8%)	1. **RUTGERS-N** 2. **RUTGERS-NB** 3. SUNY-Buffalo 4. **RUTGERS-C**	1. **RUTGERS-N** 2. SUNY-Buffalo 3. **RUTGERS-NB** 4. **RUTGERS-C**
% of Females Among Full-Time Faculty	1. **RUTGERS (29.7%)** 2. Texas (24.7%) 3. UCLA (24.2%) 4. UNC-Chapel Hill (23.9%)	1. **RUTGERS (29.5%)** 2. UNC-Chapel Hill (26.5%) 3. UCLA (26.4%)	1. **RUTGERS-N** 2. **RUTGERS-C** 3. **RUTGERS-NB** 4. Texas	1. **RUTGERS-N** 2. **RUTGERS-C** 3. **RUTGERS-NB** 4. UNC-Chapel Hill
% of Hispanic Among Full-Time Faculty	1. UCLA (3.1%) 2. UC-Davis (2.8%) 3. UC-San Diego 7. **RUTGERS (2.3%)**	1. UCLA (3.8%) 2. UC-Davis (3.4%) 3. UC-San Diego (3.4%) 8. **RUTGERS (2%)**	1. UCLA 2. UC-Davis 3. UC-San Diego 6. **RUTGERS-NB** UC-Berkeley 9. **RUTGERS-N** 18. **RUTGERS-C**	1. UCLA 2. UC-Davis 3. UC-San Diego 7. **RUTGERS-NB** UMass-Amherst 9. **RUTGERS-C** Wisconsin 12. **RUTGERS-N** Maryland

Exhibit 8

Source: Office of Affirmative Action and Employment Research

Employees by Gender and Racial/Ethnic Categories[1]



	Total		Faculty		Administrative & Professional(2)		Secretarial/Clerical		Other(3)	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
White	6,161	75.1	2,244	86.5	1,453	83.2	1,272	77.7	1,192	53.4
Black	1,225	14.9	127	4.9	199	11.4	276	16.9	623	27.9
Hispanic	499	6.1	52	2.0	44	2.5	59	3.6	344	15.4
Asian	315	3.8	170	6.6	47	2.7	27	1.6	71	3.2
American Indian	9	0.1	1		3	0.2	3	0.2	2	0.1
Total	8,209	100.0	2,594	100.0	1,746	100.0	1,637	100.0	2,232	100.0

(1)Headcount of regular full and part-time employees as of November 1989. Excludes "casual" employees and visiting faculty.
(2)Includes executive, administrative, managerial, and professional non-instructional employees.
(3)Includes technical, paraprofessional, skilled crafts, and service/maintenance employees.

Exhibit 9

Source: Office of University Administration and Personnel

Exhibit 10

RUTGERS BUILDING PROGRAM

	$	%
Libraries[1]	38.4	6.5
Student:		
Housing/Dining	73.9	
Centers	29.9	
Recreation	31.0	
	134.8	22.9
Roads, Utilities, Energy Conservation, Parking	26.0	4.4
Federally, State Mandated[2]	16.5	2.8
Agricultural Experiment Stations[3]	7.0	1.2
Administrative, Fundraising	9.6	1.6
Academic[4]	355.9	60.5
	588.2	99.9

1. includes pro-rated parts of physics and AgBiotech facilities that contain library space
2. animal care, hazardous waste
3. off-campus AES stations
4. classrooms, faculty offices, teaching laboratories, research laboratories for faculty and graduate student use

Source: Office of the Senior Vice President for Program Development, Budgeting and Student Services

Exhibit 11

NEW JERSEY USE OF RUTGERS' LIBRARIES
(FY 1990)

Interlibrary Loans	
To Other New Jersey Institutions of Higher Education	2,657
Corporation	2,724
Circulation	
Corporate	1,292
Alumni	25,039

Source: Office of the University Librarian

RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY
EFFECT OF STATE CUTS ON RUTGERS STATE APPROPRIATION

General University

Year	Base Appropriation	Salary Adjustment Shortfall[1]	Appropriation Cut[2]	Cumulative Effect
1988-89	$226,225,000	$8,950,000		$8,950,000
1989-90	$231,520,000	$8,862,000	$10,117,000	$18,979,000
1990-91	$216,514,000	$18,441,000	$26,113,000	$44,554,000
1991-92	$212,167,000[3]	Undetermined	$22,788,000[3]	$22,788,000[3]
		$36,253,000	$59,018,000	$95,271,000

Agricultural Experiment Station

Year	Base Appropriation	Salary Adjustment Shortfall[1]	Appropriation Cut[2]	Total Effective Cut
1988-89	$19,451,000	$629,000	-	$629,000
1989-90	$19,723,000	$636,000	$818,000	$1,454,000
1990-91	$19,137,000	$1,224,000	$1,450,000	$2,674,000
1991-92	$18,548,000[4]	Undetermined	$1,813,000[4]	$1,813,000[4]
		$2,489,000	$4,081,000	$6,570,000

(1) Shortfall is amount of budget salary increases scheduled but not fully allocated by the state in a given year
(2) Amount of actual dollars cut based on original appropriation + salaries of the preceeding year
(3) Proposed - state and Rutgers data at times do not reconcile. FY92 base appropriation cut, originally reported as $18.449 million to reconcile with state data, has been restated on the basis of full funding of the FY91 program
(4) Proposed

Source: Office of the Senior Vice President for Program Development, Budgeting and Student Services

Exhibit 12

Exhibit 13

ALLOCATION OF TAX REVENUES TO PUBLIC HIGHER EDUCATION: 10 STATES WITH LOWEST COMMITMENT 1988-89*

States Ranked Lowest	Higher Education as Percent of Tax Revenues
42. Illinois	6.8%
43. Pennsylvania	6.3%
44. Louisiana	5.9%
45. New York	5.8%
46. New Jersey	5.7%
47. Connecticut	5.7%
48. Massachusetts	5.5%
49. New Hampshire	5.2%
50. Vermont	4.4%
51. District of Columbia	4.1%

* State and local tax revenue appropriated or levied for current operating education expenses of public institutions. This ratio suggests the relative importance and requirements of financing public student education compared to the funding of other public services in the state and local government budgets.

Source: Halstead, Kent. State Profiles: Financing Public Higher Education: 1978-1989. Washington, D.C. Research Associates of Washington, 1989.

HIGHER EDUCATION APPROPRIATION IN NEW JERSEY

	Higher Education Net Adjusted Appropriation ($000's)*	% Change	State Budget ($000's)**	% Change	Higher Education Net Adjusted Appropriation As Percent of State Budget
FY 1981	$ 499,935	n/a	$ 5,124,722	n/a	9.76%
FY 1982	544,925	9.00%	5,743,459	12.07%	9.49%
FY 1983	575,183	5.55%	6,288,611	9.49%	9.15%
FY 1984	607,223	5.57%	6,886,132	9.50%	8.82%
FY 1985	709,532	16.85%	7,923,016	15.06%	8.96%
FY 1986	785,118	10.65%	8,996,923	13.55%	8.73%
FY 1987	794,931	1.25%	9,289,647	3.25%	8.56%
FY 1988	940,158	18.27%	10,497,273	13.00%	8.96%
FY 1989	1,034,435	10.03%	11,876,980	13.14%	8.71%
FY 1990	1,017,570	-1.63%	12,148,031	2.28%	8.38%
FY 1991	955,160	-6.13%	12,423,790	2.27%	7.69%

*Includes total Higher Education net appropriations for Direct State Services, Grants-in-Aid, State Aid, Capital Construction, and Debt Service. Net appropriation in FY 1981-1987 is total appropriation less State College revenue. SOURCE: FY 1981-1990: Governor's Budget Message; FY 1991: Appropriations Handbook and August 3, 1990 memo from State Treasurer (Salary Program Data).

**Grand Total Adjusted Appropriation. SOURCE: FY 1981-1990: Governor's Budget Message; FY 1991: Appropriations Act.

Exhibit 14

Exhibit 15

TWO-YEAR CHANGES IN TOTAL STATE APPROPRIATIONS FOR HIGHER EDUCATION

(Among states of comparable appropriations, with rankings based on 50 states)

	1990-91 Appropriation	Not Adjusted for Inflation	Adjusted for Inflation	Ranking Among 50 States
California	$6,100,728,000	+13%	+ 2%	24
Texas	2,579,342,000	+15%	+ 4%	21
Illinois	1,722,530,000	+22%	+10%	6
Florida	1,632,302,000	+11%	0%	33
Ohio	1,520,055,000	+15%	+ 4%	20
Michigan	1,486,694,000	+11%	+ 0%	35
North Carolina	1,484,279,000	+12%	+ 1%	30
Pennsylvania	1,421,710,000	+12%	+ 1%	27
Virginia	1,077,934,000	+ 5%	- 5%	40
New Jersey	1,055,893,000	- 7%	-16%	49

Source: Chronicle of Higher Education, October 24, 1990

Exhibit 16

STATE APPROPRIATIONS FOR FLAGSHIP UNIVERSITIES

1990-1991

	1990-91 Appropriations (In Thousands)	Two-Year Change
University of Arizona	$ 64,636	+17%
University of California System	2,198,686	+11%
University of Colorado System	173,429	0%
University of Florida	368,359	+ 8%
University of Illinois	601,402	+22%
Indiana University	334,667	+15%
University of Iowa	197,833	+21%
Iowa State University	187,780	+22%
University of Kansas	170,930	+23%
University of Maryland System	649,130	+26%
University of Michigan	299,801	+10%
Michigan State University	267,295	+10%
University of Minnesota System	479,039	+18%
University of Missouri System	324,215	+13%
University of Nebraska	254,504	+28%
State University of New York System	1,502,851	+ 1%
University of North Carolina-Chapel Hill	265,077	+ 9%
The Ohio State University	330,249	+14%
University of Oregon	64,636	+17%
Pennsylvania State University	243,635	+17%
University of Pittsburgh	133,822	+19%
Purdue University	237,494	+16%
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY SYSTEM	235,651	- 9%
University of Texas System	938,367	+12%
University of Virginia	161,133	+ 2%
University of Washington	256,062	+18%
The University of Wisconsin-Madison	266,774	+12%

Source: The Chronicle of Higher Education, October 24, 1990. Chronicle of data compiled by Edward R. Hines & Gwen B. Pruyne of Illinois State University.